**YELLOW WARBLER**
*Dendroica petechia*

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**Management Status:** Federal: None
California: Species of Special Concern (CDFG, 1998)

**General Distribution:**

Across its vast range, the Yellow Warbler is a highly variable species. Forty-three subspecies are currently recognized, and are treated geographically as three groups. The *aestiva* group breeds throughout much of the U.S. and Canada, from northern Alaska, northern Yukon, northwestern and central Mackenzie, northern Saskatchewan, northern Manitoba, northern Ontario, central Quebec, central Labrador, and Newfoundland, south to central Alaska, northern Baja California, though the central plateau region of Mexico to northern Guerrero, Puebla, and southeastern San Luis Potosí, and to central and northeastern Texas (formerly), central Oklahoma, central Arkansas, central Alabama, central Georgia, extreme northwestern South Carolina, and central North Carolina. The *aestiva* group winters from Veracruz, Sinaloa, and Yucatán south to Peru and northern Brazil, and sparingly north to southern California. The *petechia* group is resident from southernmost Florida and the Bahamas south through the West Indies to the northern coast of Venezuela (including Trinidad, Tobago, and Cozumel islands). The *erithachorides* group is resident from southern Baja California, Sonora, and southern Tamaulipas south along both coasts of Central America to eastern Panama; it also ranges along the west coast of South America from northwestern Colombia south to central Peru, and east along the northern coast of Colombia to northwestern Venezuela (Dunn and Garrett, 1997; AOU, 1998).

Three Yellow Warbler subspecies nest in California: *D. p. brewsteri* along the Pacific coast (plus a few desert locations), *D .p. morcomi* from the east slope of the Sierra Nevada to the Great Basin, and *D .p. sonorana* along the Colorado River (Dunn and Garrett, 1997).

Yellow Warblers are commonly observed during migration in California, on both the Pacific slope and in the deserts and interior valleys (Garrett and Dunn, 1981).

**Distribution in the West Mojave Planning Area:**

In the WMPA, the Yellow Warbler nests or has nested at only four localities: the Mojave River at Victorville (8-12 pairs annually; S. Myers unpubl. data), Camp Cady (1 pair in 1985, Kaufman et al., 1986), Morongo Valley (1-6 pairs annually, E.A. Cardiff, pers. comm.; Breeding Bird Census data), and Big Rock Creek (1-2 pairs annually, K.L. Garrett, pers. comm.; Los Angeles Co. Breeding Bird Atlas data). Several pairs also nest along Big Rock Creek just outside of the WMPA, on the Angeles National Forest. It also nests at four localities just outside of the WMPA: Tecopa (1 pair in 1979, *American Birds* 33:898, 1979), Whitewater Canyon (1-2 pairs annually, S.J. Myers, pers. obs.), Little Rock Creek (a few pairs, Los Angeles County Breeding Bird Atlas data), and South Fork Kern River Preserve at Weldon ( 500 pairs in 1997, S.A. Laymon, pers. comm.). Tecopa is approximately 15 mi. (24 km) northeast, Whitewater 3

mi. (5 km) south, and Weldon about 9.5 mi. (15 km) west of the WMPA. Little Rock Creek is on the Angeles National Forest, just south of the WMPA.

As a migrant, Yellow Warbler is common throughout the WMPA. Single day maxima of "hundreds" have been observed during mid-May at Butterbredt Canyon; fall daily maxima in the same area are typically between 50-100 (M.T. Heindel, *in litt.*). It is casual during winter in the WMPA: one was observed during the Mojave River Christmas Bird Count, 5 January 1997 (*National Audubon Society Field Notes* 51:622-623), and another at Galileo Hill Park, Kern Co. on 14 January 1996 (*National Audubon Society Field Notes* 50:225).

**Natural History:**

Yellow Warblers belong to the wood-warbler genus *Dendroica*, whose members generally possess distinct characteristics such as wing bars, tail spots, flank streaks, and patterning around the eyes (Dunn and Garrett, 1997). Yellow Warbler upperparts are yellow to greenish-yellow, with underparts bright yellow. Adult males have vertical reddish streaks on the breast. Males of subspecies in the *petechia* and *erithachorides* groups also have chestnut crowns and heads, respectively. All Yellow Warblers have yellow wing bars and/or flight feather edges, and they are the only North American wood-warblers (except the very different American Redstart, *Setophaga ruticilla*) with yellow tail spots (Pyle, 1997; Dunn and Garrett, 1997). The olive to yellowish wings have yellow wing bars that vary from bold and distinct to nearly lacking, depending on age, sex, and subspecies. In California, the species most likely to be confused with the Yellow Warbler are the Orange-crowned Warbler (*Vermivora celata*) and Wilson's Warbler (*Wilsonia pusilla*), both of which lack wing bars and yellow tail spots.

Yellow Warblers are 4.5-5.25 in. (11-13 cm) long, and weigh an average of 0.35 oz. (10 g; Dunning 1984). The maximum recorded age of a wild Yellow Warbler is 8 yrs., 11 mo. (Klimkiewicz et al. 1983).

This species primarily eats insects, which, like most other wood-warblers, it captures by foliage gleaning (Bent 1953, Ehrlich et al., 1988). Male and female Yellow Warblers have exhibited marked differences in average foraging heights (Morse, 1989).

In southern California, Yellow Warblers usually arrive on their nesting grounds at the end of March or the first week of April. The influx of migrants from breeding grounds to the north makes departure dates for southern California breeders difficult to determine. Spring migration numbers in southern California peak during the first half of May, and during September in the fall (Dunn and Garrett, 1997).

Nests are deep cups, placed in an upright fork in shrubs or small trees, typically 3-8 ft. (1-2.6 m) high, but occasionally to 60 ft. (19 m; Bent, 1953; Harrison, 1979; Dunn and Garrett, 1997). No data exist regarding plants used for nest placement at breeding localities in the California deserts, but Yellow Warblers' habits elsewhere suggest that California Wild Rose (*Rosa californica*), various shrubby willows (*Salix* spp.), and Mulefat (*Baccharis salicifolia*) may be used.

Yellow Warblers are one of the more frequent hosts for parasitism by Brown-headed Cowbirds *(Molothrus ater*). Friedmann (1963) noted that he stopped accumulating data when he had exceeded 900 records. Frequency of parasitism varies geographically, with a maximum rate of 59% of nests parasitized in Michigan. Friedmann does not include rates for *D.p. brewsteri*, but Gaines (1974) considered nesting Yellow Warblers in the Sacramento Valley to be highly susceptible to parasitism.

**Habitat Requirements:**

In the California desert, Yellow Warblers occur in riparian woodland or forest dominated by cottonwoods and willows. All four breeding localities in the WMPA contain cottonwoods and willows. Nesting habitat must contain dense understory vegetation. Fremont Cottonwoods (*Populus fremontii*) and larger willows (*Salix laevigata, S. gooddingii, S. lasiolepis*) typically form the canopy at breeding sites such as Big Morongo Canyon and the Mojave River at Victorville.

**Population Status:**

Most Yellow Warbler populations in the eastern U.S. appear to be stable. Western populations, however, are declining (Remsen, 1978; Garrett and Dunn, 1981; Dunn and Garrett, 1997). Grinnell and Miller (1944) considered *D.p. brewsteri* to be common or abundant at many breeding localities, but there has been a steady and significant decline of Pacific coast populations (Dunn and Garrett, 1997). The most serious decline has been along the Colorado River, where *D.p. sonorana* was thought to be extirpated (Rosenberg et al., 1991; Dunn and Garrett, 1997), until surveys for the Southwestern Willow Flycatcher (*Empidonax traillii extimus*) in 1997 revealed the presence of approximately 30 pairs between Topock and Picacho (R.L. McKernan, pers. comm.). Numbers of Yellow Warblers at Morongo Valley appear to be generally stable, although numbers of pairs has fluctuated since 1977 (Breeding Bird Census data). Numbers along the Mojave River at Victorville have remained at 8-12 pairs in recent years (pers. obs.). Brown-headed Cowbird trapping at the South Fork of the Kern River near Weldon, along with some habitat enhancement, has allowed the Yellow Warbler population there to increase dramatically over the past four years (S.A. Laymon, pers. comm.).

**Threats Analysis:**

Habitat destruction and parasitism by Brown-headed Cowbirds are the primary threats to breeding Yellow Warblers in the WMPA. Habitat destruction can occur in many ways, with the most catastrophic losses resulting from clearing of large tracts of forest or woodland for agriculture, development, or flood control. Activities such as wood cutting can degrade or destroy suitable breeding habitat for this species.

Grazing by cattle or other livestock can have significant adverse effects on riparian habitats. In addition to eating seedlings, saplings, shrubs, and herbaceous plants, livestock trample vegetation and the substrate of riparian areas, causing increased erosion and sedimentation. These adverse effects lead to a reduction in cover and nesting sites for birds, along with declines in available insect prey (USDI, 1981; Crumpacker, 1984). Smith (1989), studying the recovery of a riparian habitat in northern California following the exclusion of cattle, concluded that the establishment of good quality willow riparian habitat is possible only in the absence of cattle browsing.

Brown-headed Cowbird parasitism on Yellow Warblers is a serious problem in southern California (Garrett and Dunn, 1981). Brown-headed Cowbirds are common in Morongo Valley and Victorville during the nesting season. Both of these areas are commonly used for horseback riding; stables, which provide feeding areas for cowbirds (Laymon, 1987), are located near riparian habitats in these areas. At Mojave Narrows Regional Park, equestrians have created an extensive network of trails through riparian forest and woodland, increasing the amount of edge,

which is known to be a favorable condition for the proliferation of Brown-headed Cowbirds (Brittingham and Temple, 1983; Rothstein, 1994). Considering the vast amount of apparently suitable habitat at Mojave Narrows Park and nearby areas, numbers of breeding Yellow Warblers seem fairly low. It is possible that cowbird parasitism is a limiting factor. At the South Fork Kern River Valley the Yellow Warbler population has increased from 14 pairs in 1986 to approximately 500 pairs in 1997; an active Brown-headed Cowbird control program is thought to be responsible for this impressive recovery (S.A. Laymon, pers. comm.).

Lowering of ground water has had a significant effect on cottonwood-willow forest along the Mojave River in Victorville. The extent of both marshland and riparian woodland/forest has declined markedly in the past 140 years, primarily due to the drilling of wells in the Victor Valley (Torres et al., 1992). Long-time residents have stated that much of the open, dry cottonwood woodland (with little understory) in the area was once more similar to the dense, lush cottonwood-willow forest where Yellow Warblers now nest (Myers, 1992).

Fire can have a devastating effect on nesting habitat of riparian species. A wildfire at Big Morongo Preserve on 27 April 1992 burned about 50 acres (20 ha), including many large cottonwoods and willows (Cardiff, 1993). This habitat will take many years to recover completely.

Non-native invasive plant species can also degrade habitat. Exotics such as Salt Cedar (*Tamarix ramosissima, T. parviflora*), Giant Reed (*Arundo donax*), and Russian Olive (*Elaeagnus angustifolius*) displace native plant species and probably provide little in the way of habitat values for Yellow Warblers. All of these species occur along the Mojave River in the Victorville area; Russian Olive is especially prominent. Some Salt Cedar occurs at Morongo Valley.

Few, if any, data are available on the effects of off-highway vehicles on Yellow Warblers, but this activity is common at Mojave Narrows Park and other potential nesting areas near Victorville. Four-wheel drive pickup trucks have been observed crashing through dense willow thickets along the active channel of the river (S.J. Myers, pers. obs.). Such thickets appear suitable for Yellow Warbler nesting.

**Biological Standards:**

The most important measure necessary to protect or enhance Yellow Warbler populations in the WMPA is to preserve known and potential nesting areas. Of the known nesting localities, Big Morongo Canyon Preserve is managed by BLM, Mojave Narrows Regional Park is managed by San Bernardino County Regional Parks Department (the land is owned by the State of California Wildlife Conservation Board), Camp Cady is owned by California Department of Fish and Game, and Big Rock Creek is privately owned.

Management of important nesting areas for Yellow Warbler must include protection from grazing, off-highway vehicle degradation and disturbance, wood-cutting, and wildfires. Indiscriminate removal of vegetation for flood control purposes should be monitored and regulated. Typically, the vegetation removed during or in anticipation of flooding (such as along the Mojave River) is that used by nesting Yellow Warblers, Yellow-breasted Chats, and endangered species such as Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*).

Livestock and feral burros should be removed or excluded from riparian areas in the WMPA. Exclusion will necessitate the installation of fencing, which is designed to accommodate

native wildlife (e.g., Coyotes, Kit Foxes, Bobcats), while excluding livestock and burros. It may be necessary to install stock tanks in some locations to compensate for the loss of water sources for livestock. Areas whose avifaunas may benefit from livestock exclusion include Camp Cady, Afton Canyon, Cushenbury Springs, and Big Rock Creek. At Mojave Narrows Regional Park, grazing is currently limited to pastures adjacent to the river bottom, with the exception of cattle and horses that are allowed to graze throughout the Lower Slough. The slough contains a marsh of nearly 30 acres with mixed riparian scrub and woodland suitable for breeding Yellow Warblers. Restricting livestock to the pastures in this area would greatly enhance the marsh and riparian habitat.

Maintenance or enhancement of water sources necessary to preserve or improve riparian habitats should be implemented. In some cases, restoration of riparian habitat by removing invasives and planting cottonwoods and willows may be appropriate (e.g., Afton Canyon).

Management of Brown-headed Cowbird populations at important riparian bird nesting sites is of paramount importance in managing for Yellow Warbler habitat in the WMPA. Such programs must be long-term, preferably into perpetuity or until cowbirds have been eliminated. In order to initiate cowbird management at all important nesting sites in the WMPA, it will be necessary for agencies at federal, state, county, and local levels to participate in cooperative plans.

In order to evaluate the vigor of desert riparian habitats and the viability of bird populations in the WMPA, regular monitoring is necessary. BLM documents such as ACEC Management Plans and Management Plans for Natural Areas prescribe bird monitoring programs. BLM and other participating agencies should assess the effectiveness of current monitoring methods and revise as needed. Annual review of monitoring results can be used to assist in management decisions. Such review should address whether habitats are at carrying capacity for sensitive bird species, and if not, identify corrective measures that can be taken to increase populations.

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